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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,310

06/25/2008

Joseph A. Luongo

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Waters Technologies Corporation
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EXAMINER

GATZEMEYER, RYAN JON

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

07/07/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,310	Applicant(s) LUONGO ET AL.	
	Examiner RYAN GATZEMEYER	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/14/2011</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 14 April 2011 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **"fluid discharge opening" of claim 1, line 5 and claim 10, line 5 and also "second end wall" of claim 1, line 8 and claim 10, line 8** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. **Claims 1-10** are objected to because of the following informalities:
6. Regarding **claims 1 and 10**, "a plunger" in lines 7 and 14 should be --said plunger--.
7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
9. **Claim 4** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. **Claim 4** recites the limitation "said metal and metal alloy" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

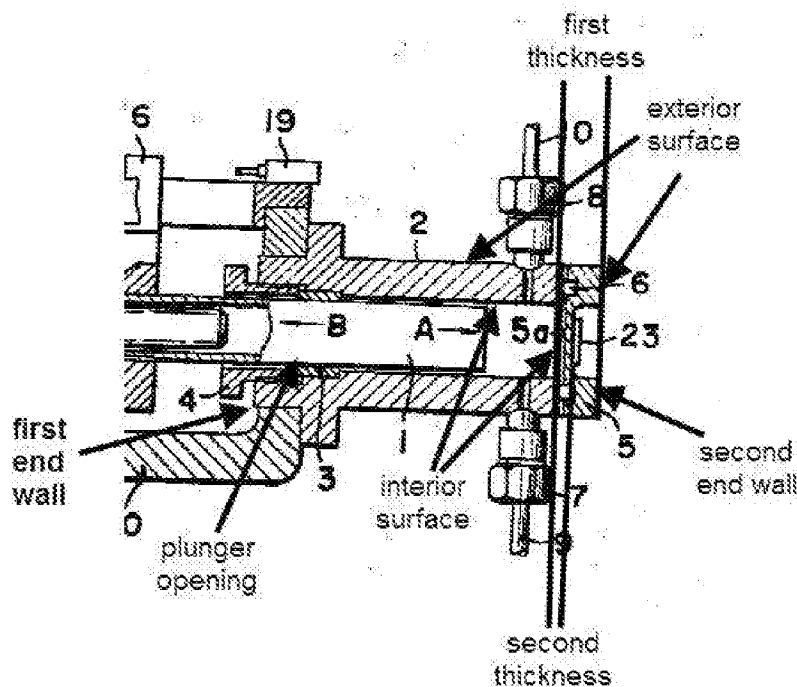
11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 1-2, 5-6 and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sakiyama et al. US Patent 3,847,507 (hereafter "Sakiyama").**

13. Regarding **claims 1 and 10**, Sakiyama discloses an apparatus for pumping fluid, as shown in Figure 1, comprising: at least one housing (2), said at least one housing having an exterior surface and an interior surface, said interior surface defining a chamber for receiving a plunger (1) and having a fluid input opening (9) and a fluid discharge opening (10) extending between said interior and exterior surfaces, said chamber having a cylindrical shape with a first end wall and a plunger opening for receiving a plunger (Col. 3, lines 44-55), as shown below in the attached figure,



wherein said exterior surface of said at least one housing has a transducer surface (5a) between said first end wall and said second end wall, said interior surface and exterior surface define a first thickness and a second thickness, as shown above in the attached figure, said transducer surface having said second thickness exhibiting measurable deformation upon said chamber holding a fluid under pressure such that said transducer surface having a first position at which the chamber is at low pressure (Col. 4, lines 50-58) and a second position at which said chamber is at high pressure (Col. 4, lines 30-35); a plunger received in said plunger opening for reciprocating movement in said chamber said reciprocating movement causing fluid movement to enter said chamber through said fluid input opening and out through said fluid discharge opening (Cp;. 3, lines 44-55); and, at least one strain sensor (23) affixed to said transducer surface (Col. 4, lines 23-29), said strain sensor producing at least one signal

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upon said transducer surface assuming said first position and at least one signal upon said transducer surface assuming said second position to function as a integrated pressure transducer (Col. 4, lines 30-35).

14. It is noted that the apparatus of Sakiyama as applied to claim 1 above discloses all of the structure as claimed in claim 10 and would be capable of performing the same method.

15. Regarding **claim 2**, Sakiyama discloses the apparatus wherein said at least one housing transducer surface (5a) is a flat surface, as shown in Figure 1, capable of deformation upon pressurization of said chamber (Col. 4, lines 23-35 and 50-58).

16. Regarding **claim 5**, Sakiyama discloses the apparatus wherein said exterior surface of said housing has a cylindrical portion and a half cylindrical portion, said cylindrical portion forming a base for attachment to other apparatus, said half cylindrical portion having a flat planar surface and a half cylindrical surface, as shown below in the attached figure.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

20. **Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiyama as applied to claims 1-2, 5-6 and 10 above.**

21. Regarding **claims 7-9**, Sakiyama discloses the apparatus substantially as claimed for the second thickness satisfying the specific thicknesses as claimed.

However, there are no limiting factors in the claims given to the results of defining the thickness of the second thickness.

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable thicknesses of the second thickness as disclosed by Sakiyama involves only routine skill in the art. In re Aller, 105, USPQ 233 "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation" such that one skilled in the art would have been motivated to select suitable values of the orifice diameters, as evidenced by White et al. US Patent 4,775,816 (Col. 4, lines 22-24)

23. **Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakiyama as applied to claims 1-2, 5-6 and 10 above in view of Cook et al. WIPO Publication WO 2005/042064 (hereafter "Cook") as evidenced by Woodard (6609883).**

24. Regarding **claims 3 and 4**, Sakiyama discloses the apparatus substantially as claimed except for wherein the housing has a composition selected from the metals and metal alloys consisting of titanium, aluminum, and vanadium.

25. Cook is relied upon to teach a pump housing having composition of titanium, aluminum and vanadium alloy 6Al4V (Page 1, lines 10-11) and further evidenced by Woodard et al US Patent 6,609,883 (hereafter "Woodard").

26. It would have been obvious to one of ordinary skill in the art at the time the invention was made to fabricate the pump housing of Sakiyama of metals with the composition as disclosed by Cook and evidenced by Woodard because "titanium of around 0.1 mm to 0.2 mm thickness would give sufficiently low eddy losses.

Encapsulation within such a shell would be needed to prevent winding movement" as evidenced by Woodard (Col. 10, lines 40-43).

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

28. Bullister et al. (US patent 6,171,253) discloses a pressure sensor disposed on an outer surface of a fluid tube with a flexible diaphragm which bends under pressure and with a gauge on the diaphragm for measure the flexure.

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29. White et al. (US Patent 4,775,816) discloses a pressure sensor having transducer elements with a chamber having a deformable wall section with the transducer elements placed above them so that pressure will deform the wall section.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN GATZEMEYER whose telephone number is (571)270-7559. The examiner can normally be reached on 9am-5pm EST.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

RG
30 June 2011